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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/777,203

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Timothy M. Schmidl

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TEXAS INSTRUMENTS INCORPORATED

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EXAMINER

GHULAMALI, QUTBUDDIN

ART UNIT

PAPER NUMBER

2611

NOTIFICATION DATE

DELIVERY MODE

11/29/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

09/777,203

Applicant(s)

SCHMIDL ET AL.

Examiner

Qutub Ghulamali

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10, 11 and 13-22 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is in response to the petition letter filed 08/15/2007.
2. Applicant's remarks, see page 5, filed 8/15/2007, with respect to Claims 10-22, have been fully considered and are persuasive. However, upon further review and search, the indication of allowable subject matter in claims 10-22, has been withdrawn. The rejection follows.

Joint Inventor

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 10-11, 13-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osthoff et al (USP 6,126,310) in view of Lockhart et al (USP 6,161,207).

Regarding claim 10, Osthoff discloses a data communication apparatus, comprising:

an input (IS) for receiving original data bits (fig. 1a, 3a) that are to be transmitted via a communication channel (TL) to another data communication apparatus (col. 8, lines 31-37; col. 9, lines 23-33);

an encoder coupled to said input for applying to the original data bits an encoding algorithm (encoding technique) that produces overhead bits (col. 1, lines 55-60; col. 2, lines 1-14, 32-46);

an output for providing bits that are to be transmitted across the communication channel (fig. 1a, 3a; col. 6, lines 9-17). Osthoff further discloses a data path coupled between said encoder and said output, said data path receiving information from said another data communication apparatus (receiver), one of the original data bits and the overhead bits in response to a first information (ACK) (fig. 1a, 3a), however, Osthoff, does not explicitly disclose data path selecting the other of the original data bits and the overhead data bits in response to a second information, to be provided to said output for transmission across the communication channel to said another data communication apparatus. However, Lockhart discloses (see figs. 2, 3) data path selecting one of the original data bits and the overhead bits in response to a first information, said data path selecting the other of the original data bits and the overhead data bits in response to a

second information, to be provided to said output for transmission across the communication channel to said another data communication apparatus (col. 3, lines 57-67; col. 4, lines 1-14; col. 5, lines 47-67; col. 6, lines 11-30, 42-49). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a selective transmission means to transmit the other of original data bits and overhead bits in response to a second information (negative acknowledgement NACK) as taught by Lockhart in the system of Osthoff because it can provide many of the benefits of selective retransmission without the additional overhead of prior block error detection codes with reasonably expected increase of coverage of data modem by several decibels.

Regarding claim 11, Osthoff discloses data path includes a buffer coupled to said encoder for storing the original data bits and the overhead bits (col. 6, lines 12-20).

Regarding claim 13, Osthoff discloses first information includes an acknowledgement (ACK) that the information received correctly. Osthoff does not explicitly disclose second information includes negative acknowledgement indicating that an earlier transmission has not been received correctly at said another communication apparatus, said data path responsive to the negative acknowledgement for changing its selection from one of the original data bits and the overhead bits to the other of the original data bits and the overhead bits. However, Lockhart discloses (see figs. 2, 3) data path selecting one of the original data bits and the overhead bits in response to a first information, said data path selecting the other of the original data bits and the overhead data bits in response to a second information, to be provided to said

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output for transmission across the communication channel to said another data communication apparatus (col. 3, lines 57-67; col. 4, lines 1-14; col. 5, lines 47-67; col. 6, lines 11-30, 42-49). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a selective transmission means to transmit the other of original data bits and overhead bits in response to a second information (negative acknowledgement NACK) as taught by Lockhart in the system of Osthoff because it can provide many of the benefits of selective retransmission without the additional overhead of prior block error detection codes with reasonably expected increase of coverage of data modem by several decibels.

Regarding claims 14 and 22, Osthoff discloses a wireless communication apparatus (fig. 6)

Regarding claim 15, Osthoff and Lockhart combination disclose every feature of the claimed invention except a convolutional encoding algorithm. Official Notice is taken that both the concept and the advantages of using convolutional encoding algorithm are conventionally well known and expected in the art. Therefore it would have been obvious to a person skilled in the art at the time of invention to include convolution encoding or coding algorithm in the combined system of Osthoff and Lockhart because use of convolutional algorithm for coding of signals provides a robust and reliable signal transmission.

Regarding claim 16, Osthoff discloses a data communication apparatus comprising:

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an error detector coupled to said input for determining whether the received version of the original data bits is correct (col. 6, lines 40-50); and

a controller coupled to said error detector, responsive to a determination that the received version of the original data bits is correct for providing said first information to said another data communication apparatus, and responsive to a determination that the received version of the original data bits is incorrect for providing said second information to said another data communication apparatus (col. 6, lines 45-67; col. 7, lines 1-5);

an input for receiving a received version of original bits in response to a first information without overhead bits produced at another data communication apparatus by operation of an encoding algorithm applied to the original bits (col. 1, lines 55-60; col. 2, lines 1-14, 32-46; col. 8, lines 31-37; col. 9, lines 23-33). Osthoff further discloses a data path coupled between said encoder and said output, said data path receiving information from said another data communication apparatus (receiver), one of the original data bits and the overhead bits in response to a first information (ACK) (fig. 1a, 3a), however, Osthoff, does not explicitly disclose input receiving overhead bits in response to a second information to be provided to said output for transmission across the communication channel to said another data communication apparatus. However, Lockhart discloses (see figs. 2, 3) data path selecting one of the original data bits and the overhead bits in response to a first information, said data path selecting the other of the original data bits and the overhead data bits in response to a second information, to be provided to said output for transmission across the communication channel to said

another data communication apparatus (col. 3, lines 57-67; col. 4, lines 1-14; col. 5, lines 47-67; col. 6, lines 11-30, 42-49). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a selective transmission means to transmit the other of original data bits and overhead bits in response to a second information (negative acknowledgement NACK) as taught by Lockhart in the system of Osthoff because it can provide many of the benefits of selective retransmission without the additional overhead of prior block error detection codes with reasonably expected increase of coverage of data modem by several decibels.

Regarding claim 17, Osthoff discloses input for receiving a received version of the overhead bits as transmitted from said another data communication apparatus, said controller coupled to said input for applying to the received version of the overhead bits a mapping (selected reordering) operation which, if the overhead bits have been received correctly at the receiving end, will result in the original data bits, said error detector coupled to said controller for applying an error detection procedure to the result of the mapping (selected reordering, arranged in a specific order or scheme) operation to determine whether the mapping operation has resulted in the original data bits (col. 6, lines 31-58; col. 9, lines 1-10, 25-33).

Regarding claim 18, Osthoff discloses a decoder (fig. 8a) coupled to input and controller, the controller responsive to a determination by said error detector that the mapping operation has not resulted in the original data bits for signaling said decoder to apply to the received version, of the original data bits and the received version of the

overhead bits a decoding algorithm that corresponds to said encoding algorithm (col. 10, lines 14-64).

Regarding claim 19, Osthoff discloses a buffer coupled between said input and said decoder for storing the received version of the original bits and the received version of the overhead bits for use by said decoder (col. 6, lines 9-23).

Regarding claim 20, Osthoff discloses error detector is coupled to said decoder for determining whether said decoding algorithm has resulted in the original data bits, controller operable in response to a determination that said decoding algorithm has not resulted in the original data bits for providing for transmission to other data communication apparatus a request for retransmission of the original data bits (col. 6, lines 45-67; col. 7, lines 1-5).

Regarding claim 21, Osthoff and Lockhart combined disclose all limitations of the claim. The combination however, is not explicit regarding a Viterbi decoder or decoding algorithm. As best understood by the examiner, Viterbi decoder for decoding is conventionally well known and readily available to a person skilled in the art of signal communication to utilize because it can provide efficient and reliable data reception and transmission or encoded signals.

Allowable Subject Matter

6. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014. The examiner can normally be reached on Monday-Friday, 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QG.
October 17, 2007.


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER